REMARKS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-12 are pending, with Claims 1 and 7 amended by the present amendment.

In the Official Action, Claims 1-2 and 7-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of Ryu et al. (U.S. Patent No. 6,330,384, hereinafter Ryu) and further in view of Katagiri et al. (U.S. Patent No. 6,359,724, hereinafter Katagiri); Claims 3 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art, Ryu, Katagiri, and Chan et al. (U.S. Patent No. 6,009,220), hereinafter Chan); Claims 4 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art, Ryu, Katagiri, Chan and Fukushima et al. (U.S. Patent No. 6,198,570, hereinafter Fukushima); Claims 5 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of Ryu, Katagiri and Alphonsus et al. (U.S. Patent No. 5,764,405, hereinafter Alphonsus); and Claims 6 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art, Ryu, Katagiri and Mathis (U.S. Patent No. 4,726,644).

Applicants have amended Claims 1 and 7 cosmetically to more clearly describe and distinctly claim Applicants' invention. Support for this amendment is found in Applicants' originally filed specification.[1] No new matter is added.

Briefly recapitulating, Claim 7 is directed to a method for transmitting a wavelength division multiplexed optical transmission. The method includes a) modulating a plurality of laser signals having inherent wavelengths with a plurality of data signals and outputting a plurality of modulated optical signals within a predetermined wavelength band; b) amplifying

[1] Specification, Figures 3, 5 and 6.

a spontaneous emission light signal with non-input and outputting an amplified spontaneous emission light signal; c) band pass filtering the amplified spontaneous emission light signal; d) outputting a non-modulated spectrum slice optical signal; e) multiplexing the non-modulated spectrum slice optical signal as a dummy signal of an optical signal to be added in the future with the modulated optical signals; and f) transmitting a multiplexed optical signal.

Applicants' claimed invention allows for a flatter gain distribution in the optical transmission band, a reduction of modulated signal power so as to prevent non-linear optical effects, reduced possibility of stimulated Brillouin scattering, removes the need for a polarization scrambler, and thus reduces the size/cost and increases the flexibility of WDM transmission devices. Most notably, by using band filtered ASE sources, Applicants' claimed invention provides a low cost growth capacity by obviating the need to replace conventional dummy sources as new signals are added.[2]

Applicants admitted background art describes optically multiplexing optical signals with a first and second dummy optical signal to produce a set of optical signals bounded by a first and second dummy signals. However, as acknowledged in the Official Action, Applicants' admitted prior art does not disclose or suggest using amplified spontaneous emission (ASE) as a dummy signal source or band pass filtering the amplified spontaneous emission. Because Applicants' admitted prior art does not disclose or suggest band filtering ASE to restrict the ASE to a wavelength band adjacent to a data signal wavelength band, Applicants' admitted prior art does not disclose or suggest also does not disclose or suggest multiplexing band filtered ASE with an optical data signal within adjacent wavelength bands.

Ryu describes a high power and wideband fiber optic light source include a first rare earth doped optical fiber, a second rare earth doped optical fiber, an optical coupler coupled between the first and second rare earth doped optical fibers for transmitting the input

[2] Specification, page 18, line 8 – page 20, line 10.

pumping light to the second rare earth doped optical fiber, and a pumping light source adapted to supply a pumping light, as the input pumping light, to the optical coupler.[3] The pumping source may be an amplified spontaneous emission (ASE) source.[4] However, as acknowledged in the Official Action, Applicants' admitted prior art and Ryu do not disclose or suggest using a band pass filter to slice the spectrum of an amplified spontaneous emission light source.

Katagiri describes a light generation method and source where a white output from a white light source having wavelength components over a wide band passes through an isolator and is then filtered. In Katagiri, some single mode light sources comprise a combination of white light sources, and an optical filter to spectrum-slice a single mode light of selective wavelengths from a wideband white light. The wide band white light source may include an amplified spontaneous emission (ASE) generated from optical fiber amplifier typically including an erbium doped fiber amplifier (EDFA). Since a spectrum of an ASE from an optical fiber amplifier generally has no fine structure, a single mode light can be obtained which has an arbitrary center transmission wavelength λc selected by the optical filter. In addition, an arrayed waveguide grating (AWG) filter can be used to simultaneously obtain single mode lights of a plurality of wavelengths.[5]

Applicants submit there is no teaching, suggestion, or motivation, either explicitly or implicitly, in either reference to combine the features of Applicants' Admitted Prior Art, Ryu and Katagiri to arrive at Applicants' inventions recited in Claims 1 and 7. Thus, Applicants submit it is only through an impermissible hindsight reconstruction of Applicants' invention that the rejection of Claims 1 and 7 can be understood.[6] In effect, the outstanding rejection

[3] Ryu, abstract.
[4] Ryu, column 1, lines 15-32.
[5] Katagiri, col. 2, lines 7-19; col. 1, line 33 to col. 2, line 6; Figs. 21-22.
[6] MPEP § 2143.01 "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found

does little more than attempt to show that parts of the inventive combination of Claims 1 and 7 were individually known in other arts and to suggest that such a showing is all that is necessary to establish a valid case of *prima face* obviousness. The PTO reviewing court reviewed such a rationale and dismissed it in *In re Rouffet*, 149 F. 3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) as follows:

> As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983); see also *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579-80, 219 USPQ 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. [emphasis added.]

There has been no such showing of those required reasons made in the rejection. That is, none of the applied references discuss the desirability of a flatter gain distribution in the optical transmission band, a reduction of modulated signal power so as to prevent non-linear optical effects, reduced possibility of stimulated Brillouin scattering, removes the need for a polarization scrambler, and thus reduces the size/cost and increases the flexibility of WDM transmission devices. More importantly, none of the applied references discuss the desirability of providing low cost growth capacity for new signals without having to replace conventional dummy sources.

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either explicitly or implicitly in the references themselves or in the knowledge of one of ordinary skill in the art."

Applicants have considered the remaining applied references and submit there is no teaching, suggestion, or motivation, either explicitly or implicitly, in either reference to combine the features of these references with the features of Applicants' Admitted Prior Art, Ryu and Katagiri to arrive at Applicants' inventions recited in Applicants dependent claims.

Chan describes a surveillance system for in-service fault identification and amplified passive branch optical network. As shown in Fig. 1(a) of Chan, a network input path 12 is coupled to an erbium doped fiber amplifier (EDFA) 14. Optical isolator 16 is coupled to the output of the EDFA 14 for preventing unwanted back reflections from entering the output end of the amplifier. A three-port optical circulator 18 via ports 1 and 2 optically couples light exiting the isolator 16 with a 1xN splitter 19 which splits the input optical signal into N signal paths.[7]

Fukushima describes an optical filter that can restrain the wavelength dependence of the gain of an optical amplifier. In Fukushima the input signal light power, output light power of pump light sources 8, an output signal light power of optical amplifier 4 are set to power values used for communication. The total power of the plurality of test input light, that includes a simulation input light of a plurality of wavelengths emitted by light sources 1a and the single probe light emitted by light sources 1b, is set equal to the total power of the actual communications input signals of a plurality of wavelengths used in wavelength division multiplex communication.[8]

Alphonsus discloses a redundant TTE optical transmission system which eliminates signal power loss due to protection elements and thus provides a system power budget comparable to non-redudant TTE systems. In one embodiment, Alphonsus discloses the use of two sets of associated pump lasers 50 in an optical amplifier 30. With redundant pumps, the optical amplifier 30 does not fail when one of the pumps 50 fails. Thus, optical amplifier

[7] Chan, col. 3, lines 32-69.
[8] Fukushima, col. 7, lines 3-16.

30 failure is limited to the circumstance where both sets of laser pumps 50 are inoperative simultaneously.[9]

Mathis describes a fiber optic data bus that includes a multiplexer for generating a plurality of optical signals for intensity modulating each of the optical signals in response to a respective one of a plurality of input RF signals, each at a different RF carrier frequency, to provide a plurality of intensity modulated optical signals.[10] Figure 13 of Mathis illustrates a pass band response of a single filter and of two cascaded filters. Figure 13(a) illustrates a response in output power versus frequency when the filter is tuned with a resonant carrier frequency of 1.94 GHz. Figure 13(b) illustrates the two cascaded filter response of output power versus frequency when each filter is tuned to 1.9 GHz. In comparing Figs. 13(a) and 13(b) it can be seen that a sharper attenuation (i.e., narrow pass band) is achieved with the cascaded filters.[11]

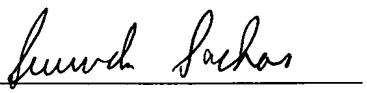
Again, Applicants submit there is no teaching, suggestion, or motivation, either explicitly or implicitly, in either reference to combine the features of Chan, Fukushima Alphonsus, and Mathis with the features of Applicants' Admitted Prior Art, Ryu and Katagiri to arrive at Applicants' inventions recited in Applicants dependent claims. Thus, Applicants submit the rejection of Applicants' dependent claims is also improper.

[9] Alphonsus, col. 4, lines 20-32.
[10] Mathis, Abstract.
[11] Mathis, col. 9, lines 44-61.

Accordingly, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870 Surinder Sachar
Registration No. 34,423
Michael E. Monaco
Registration No. 52,041

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)
MM/law

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